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EXAMINER

IP, SIKYIN

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1742

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/937,889
Filing Date: October 02, 2001
Appellant(s): TOSAKA ET AL.

MAILED
JUN 04 2007
GROUP 1700

T. Daniel Christenbury
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed January 22, 2007 appealing from the Office action mailed June 26, 2006.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The U.S. Patent No. "5,074,929" to Tosaka should be read "5,074,926". It was typographical error from prior office action.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,074,926

TOSAKA

12-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 10, 12, and 14-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claimed limitation "0.45 or less of Si" in claims 1, 2, 10, and 12 have no literal support in the specification originally filed.

The instant claimed limitations N/AI ratio and N dissolved content in claims 16-19 have no literal support in the specification originally filed. In instant remarks, appellants argue that

„ These ranges are inherently supported by virtue of the “or more” language in each case. „

But, N/AI being “0.3 or more” as originally claimed could merely mean 0.31 not 0.6 as instantly claimed. Same rationale holds true for N in the dissolved state.

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Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application

indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Appellant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5, 10, 12, and 14-19 are rejected under 35 U.S.C. § 103 as being unpatentable over USP 4790889 to Maid et al in view of USP 5074929 to Tosaka et al. (Both are references of record).

Maid disclose(s) the features including the claimed steel alloy composition (col. 2, lines 35-58 and col. 3, lines 23-25), ferrite phase to martensite phase ratio (col. 1, lines 9-16 and col. 3, lines 31-36), tensile strength (col. 4, lines 24-34), hot-rolled product thickness (col. 4, lines 40-42 and Table 2, col. "d") with improved uniform cold workability (col. 4, lines 16-23), and baking (col. 4, lines 24-29). The difference between the reference(s) and the claims are as follows: with respect to claims 1-2 and 10, Maid does not disclose the claimed N/Al ratio and the amount of dissolved N in

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steel, ferrite grain size. With respect to claim 12, Maid does not disclose Nb. With respect to claims 14-15, Maid does not disclose electroplating or hot-dip plating a steel sheet. But, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

Assuming *arguendo* that the instant recited Si up to 0.45 and N/Al ratio 0.6 or more are supported by instant specification; nevertheless, 0.5 reads on claimed 0.45 and 0.6 reads on 0.55 as calculated from Maid. It is well settled that a *prima facie* case of obviousness would exist where the claimed ranges and prior art do not overlap but are close enough that one ordinary skilled in the art would have expected them to have the same properties, *In re Titanium Metals Corporation of America v. Banner*, 227 USPQ 773 (Fed. Cir. 1985), *In re Woodruff*, 16 USPQ 2d 1934, *In re Hoch*, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970), and *In re Payne* 606 F.2d 303, 203 USPQ 245 (CCPA 1979). To overcome the *prima facie* case, an appellant must show that there are substantial, actual differences between the properties of the claimed compound and the prior art compound. *Hoch*, 428 F.2d 1343-44, 166 USPQ 406 at 409.

With respect to the dissolved N content, which would have been inherently possessed by alloy steel of Maid since the claimed N content and other alloying

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elements' contents, microstructure, tensile properties, hot rolling, and bake hardening steps are overlapped. Therefore, it would have been obvious to one of ordinary skill in the art to select any portion of range, including the claimed range, from the broader range disclosed in a prior art reference because the prior art reference finds that the prior art composition in the entire disclosed range has a suitable utility. Also see MPEP § 2131.03 and § 2123.

Tosaka in col. 2, lines 37-62 disclose stretch flanging property of alloy steel composition similar to Maid, made by hot rolling, cold rolling, hot-dip galvanized (col.2, lines 10-61), can be improved with fine grain ferrite having grain size less than 20 μm in the same field of endeavor or the analogous metallurgical art. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to hot-dip galvanizing and refine ferrite grain size of steel of Maid as taught by Tosaka in order to improve/provide the corrosion and stretch-flanging properties (See Tosaka, col. 2, lines 37-61). In re Venner, 120 USPQ 193 (CCPA 1958), In re LaVerne, et al., 108 USPQ 335, and In re Aller, et al., 105 USPQ 233. Tosaka further discloses addition of Nb would improve steel alloy strength and ductility such as stretch flanging property. The precipitated Nb carbonitride would improve recrystallized ferrite structure (see col. 3, lines 51-66). It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134

USPQ 343 (CCPA 1962). Tosaka does not disclose the Nb carbonitride precipitate size, but the size would have been in the instant claimed range to improve strength and ductility of the rolled steel.

(10) Response to Argument

Appellant's arguments filed January 22, 2007 have been fully considered but they are not persuasive.

Appellants argue that page 52, Table 1, Steel No. 5 supports 0.45 wt.%. But a point in the specification cannot support a range.

~~The Appellants first note that~~ the N/Al ratio is only contained within Claims 16-19. Therefore,

Appellants argue that ~~" Claims 1-5, 10, 12, and 14-15 are not included in this portion of the rejection. The Appellants also "~~

Claims 1-5, 10, 12, and 14-15 are rejected because of Si content 0.45 wt% or less.

Appellants argue that

The originally claimed ratio was 0.3 or more. That range literally supports any range of 0.3.

" up to infinity. That means that any ratio greater than 0.3 is inherently supported by definition. ~~It~~ " But, N/Al being "0.3 or more" as originally claimed could merely mean 0.31 or any range that is supported by specification but not 0.6 to infinity as instantly claimed.

Appellants' argument with respect to Maid in page 13, second and third paragraphs are noted. Below is a table which has summarized the features from references of record:

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	Appeal claim 1	USP '889	USP '926
C	≤ 0.15	0.05-0.16	
Si	≤ 0.45	0.5-1.0	
Mn	≤ 3.0	0.2-0.4	
P	≤ 0.08	≤ 0.025	
S	≤ 0.02	≤ 0.015	
Al	≤ 0.02	0.02-0.1	
N	0.005-0.0250	≤ 0.011	
Fe	Bal	Bal	
N/Al ratio	$0.3 \leq$	≤ 0.55	
Ferrite phase grain size μm	≤ 10		≤ 20
Tensile strength MPa	$440 \leq$	500-600	

There is at least one significant difference that appears immediately. In particular, Maid discloses 0.02 to 0.1% of Al. In sharp contrast, the Appellants' Claims 1, 2, 10, and 12 recite less than 0.002% of Al. This means that at least with respect to Al, there is no overlap between what the

Appellants argue that " Appellants claim and what Maid discloses. ~~The result of this is that the Appellants' "claimed steel"~~ "

But appellants' argument is found inconsistent with appealed claims 1, 2, 10, and 12

(see below):



Summary of Claimed Features

1. A high tensile strength hot-rolled steel sheet having superior aging hardenability comprising, in percent by mass,

0.15% or less of C,
0.45% or less of Si,
3.0% or less of Mn,
0.08% or less of P,
0.02% or less of S,

less than 0.02% of Al,

0.005% to 0.0250% of N, and

the balance being Fe and incidental impurities,
the ratio of (mass%) Al/(mass%) being 0.1 or more,

in as the described steel having 0.0050% or more, wherein the hot-rolled steel sheet has a tensile strength with an average grain size of 10 μm or less.

2. A high tensile strength hot-rolled steel sheet having superior aging hardenability with a tensile strength of 440 MPa or more corresponding, in percent by mass,

0.15% or less of C,

0.45% or less of Si,

3.0% or less of Mn,

0.08% or less of P,

0.02% or less of S,

less than 0.02% of Al,

0.0050% to 0.0250% of N, and

less than 0.02% of Al,
0.0050% to 0.0250% of N, and
the balance being Fe and incidental impurities,
the ratio of (mass%) Al/(mass%) being 0.1 or more, N in the described steel being 0.0050% or more.

wherein the hot-rolled steel sheet has a structure in which the grain size of the ferrite phase having an average grain size of 10 μm or less, and the mass ratio of the ferrite phase is 70% or more.

12. A high tensile strength hot-rolled steel sheet having superior aging hardenability comprising, in percent by mass,

0.15% or less of C,

0.45% or less of Si,

3.0% or less of Mn,

0.08% or less of P,

0.02% or less of S,

less than 0.02% of Al,

0.0050% to 0.0250% of N, and

Appellants state below:

"

Immediately following that acknowledgement, the rejection states as follows:

But, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, In re Cooper and Foley 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, Taklatwalla v. Marburg, 620 O.G. 685, 1949 C.D. 77, and In re Pilling, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. In re Austin, et al., 149 USPQ 685, 688.

The Appellants do not understand this statement and the dated case law to support the fundamentals of the rejection. In particular, none of the solicited claims contain a "general formula." ~~While it is~~ " This refers to the claimed N/AI ratio – general formula. Although cited reference does not disclose the N/AI ratio, the reference discloses the N and AI contents. Therefore, the N/AI ratio can be calculated and is disclosed.

Appellants state below

"

The next portion of the rejection reads as follows:

Assuming arguendo that the instant recited Si up to 0.45 and N/Al ratio 0.6 or more are supported by instant specification; nevertheless, 0.5 reads on claimed 0.45 and 0.6 reads on 0.55 as calculated from Maid. It is well settled that a prima facie case of obviousness would exist where the claimed ranges and prior art do not overlap but are close enough that one ordinary skilled in the art would have expected them to have the same properties, *In re Titanium Metals Corporation of America v. Banner*, 227 USPQ 773 (Fed. Cir. 1985), *In re Woodruff*, 16 USPQ 2d 1934, *In re Hoch*, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970), and *In re Payne* 606 F.2d 303, 203 USPQ 245 (CCPA 1979). To overcome the prima facie case, an applicant must show that there are substantial, actual differences between the properties of the claimed compound and the prior art compound. *Hoch*, 428 F.2d 1343-44, 166 USPQ 406 at 409.

The Appellants have already established that the Appellants are fully entitled to claim 0.45% or less of Si and a N/Al ratio of 0.6 or more (as it applies to Claims 16-19). ~~The rejection relies on the~~ " But, the supports for 0.45% or less Si and N/Al ratio of 0.6 or more are disagreed with USPTO practice.

Appellants argue that.

The Appellants' claims recite 0.45% or less of Si. On the other hand, Maid discloses 0.5 to 1.0% of Si. The Appellants claim an amount of Si that is no more than 0.45, while Maid discloses an amount of Si that is 0.5% or more (but only up to 1.0%). One skilled in the art can see based on simple mathematics that there is no overlap between the Appellants' claimed amount of Si and the disclosed amount of Maid. In fact, the Appellants respectfully submit that one skilled in the art can readily see, again based on simple mathematics, that there is a gap between the claimed range of Si and the range of Si disclosed by Maid. The Appellants therefore respectfully submit that 0.5 does not "read" on 0.45. This is the most simple of mathematic principles.

" But, the examiner

reiterates response and case law cited in the paragraph immediately above.

Appellants argue that Maid fails to teach N/Al 0.6 or more. Assuming arguendo that the instant recited N/Al ratio 0.6 or more is supported by instant specification; nevertheless, 0.6 reads on 0.55 as calculated from Maid. Although cited reference does not disclose the N/Al ratio, the reference discloses the N and Al contents. Therefore,

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the N/Al ratio can be calculated and is disclosed. It is well settled that a prima facie case of obviousness would exist where the claimed ranges and prior art do not overlap but are close enough that one ordinary skilled in the art would have expected them to have the same properties, In re Titanium Metals Corporation of America v. Banner, 227 USPQ 773 (Fed. Cir. 1985), In re Woodruff, 16 USPQ 2d 1934, In re Hoch, 428 F.2d 1341, 166 USPQ 406 (CCPA 1970), and In re Payne 606 F.2d 303, 203 USPQ 245 (CCPA 1979). To overcome the prima facie case, an appellant must show that there are substantial, actual differences between the properties of the claimed compound and the prior art compound. Hoch, 428 F.2d 1343-44, 166 USPQ 406 at 409.

Appellants argue that

The rejection also takes the position that the amount of dissolved N "would have been inherently possessed by alloy steel of Maid since the claimed N content and other alloying elements' contents, microstructure, tensile properties, hot rolling and baked hardening steps are overlapped." The Appellants respectfully submit that this is inaccurate. The Appellants have already established that the alloying elements contents do not overlap and are not the same. Maid does not disclose the claimed amount of less than 0.02% of Al. Instead, Maid discloses a larger range of 0.02-0.010% of Al. Therefore, there is an alloying element that is particularly important and that has not overlapped with Maid. ~~Also, there is no establishment that the microstructure of Maid is the same as that as~~ "

But, there is no factual evidence support claimed "less than 0.02 wt.% Al" is critical and has property different from "0.02 wt% Al" as taught by Maid.

Appellants' argument in pages 17-18 of instant brief is noted. But, there is no factual evidence on record supporting the claimed "less than 0.45 wt.% Si" and/or the "N/Al ratio 0.3 or more" is critical and possesses unexpected result.

Appellants' argument in paragraph bridging pages 19-20 of instant remarks is noted. However, it is well settled that the examples of the cited reference are given by

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way of illustration and not by way of limitation. In re Widmer, 353 F.2d 752, 757, 147 USPQ 518, 523 (CCPA 1965), In re Boe, 148 USPQ 507 (CCPA 1966), and In re Snow, 176 USPQ 328.

Appellants argue that

~~Appellants' claims.~~ First, the Appellants respectfully submit that one skilled in the art would not

combine Tosaka with Maid. The reasons for this are simple. Maid discloses a hot-rolled steel strip.

In sharp contrast, Tosaka discloses cold-rolled steel sheets. This alone would give one skilled in the

" art pause as to making the hypothetical combination. ~~This problem is magnified, however, because~~ " But, steel sheets of

Tosaka are also required hot rolling (examples can be seen below).

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According to this invention, there is also provided a process for producing a high tensile cold rolled steel sheet improved in stretch flanging property, which comprises the steps of: preparing, as a material, steel
15 containing 0.03% to 0.15% by weight of C, 0.05% or less by weight of Si, 0.5% to 1.2% by weight of Mn, 0.005% to 0.045% by weight of Nb, and 0.10% or less by weight of Al, the remainder being iron and unavoidable
20 impurities; subjecting the material to ~~hot rolling~~; effecting cold rolling at a reduction rate in thickness of more than 50%; and effecting annealing in which the material is heated at a heating rate of 3° C./sec or more and retained in a temperature range of 720° to 780° C.
25 for 20 to 60 seconds in a continuous annealing line, and then cooling the material.

Furthermore, a process is provided for producing a high tensile hot dip galvanized steel sheet improved in stretch flanging property, which comprises the steps of:
30 preparing, as a material, steel containing 0.03% to 0.15% by weight of C, 0.05% or less by weight of Si, 0.5% to 1.2% by weight of Mn, 0.005% to 0.045% by weight of Nb, and 0.10% or less by weight of Al, the remainder being iron and unavoidable impurities; sub-
35 jecting the material to ~~hot rolling~~; effecting cold rolling at a reduction rate in thickness of more than 50%; and effecting annealing in which the material is heated at a heating rate of 3° C./sec or more and retained in a temperature range of 720° to 780° C. for 20 to 60 seconds in an in-line anneal type continuous hot dip galvanizing
40 line, and then cooling and hot-dipping the material.

Moreover, the invention defined in a product-by-process claim is a product, not a process. In re Bridgeford, 357 F. 2d 679, 149 USPQ 55 (CCPA 1966) and MPEP § 2113. It is the patentability of the product claimed and not of the recited process steps which must be established. See In re Brown, 459 F. 2d 531, 173 USPQ 685 (CCPA 1972).

Appellants' argument in paragraph bridging pages 21-22 of instant brief is noted. But, it is well settled that the examples of the cited reference are given by way

of illustration and not by way of limitation. In re Widmer, 353 F.2d 752, 757, 147 USPQ 518, 523 (CCPA 1965), In re Boe, 148 USPQ 507 (CCPA 1966), and In re Snow, 176 USPQ 328.

Appellants' argument in pages 22-24 of instant remarks is noted. But, process of Tosaka also requires hot-rolling. Moreover, appellants fail to provide factual evidence that the hot rolling in Tosaka has no effect on the steel sheets.

Appellants' argument in pages 25-26 of instant brief is noted. But, grain size less than 20 μ m includes size less than 10 μ m.

Appellants' argument in pages 27-31 is noted. But, unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification is not sufficient. In re Geisler (CA FC) 43 USPQ2d 1362 (7/7/1997) and Ex parte Gelles, 22 USPQ2d, 1318. Comparison must be done under identical condition except for the novel features of the invention. In re Brown, 173 USPQ 685 and In re Chapman, 148 USPQ 711. The showing of unexpected results must be occurred over the entire claimed range. In re Clemens, 622 F.2d 1029, 206 USPQ 289, 296 (CCPA 1980). The scope of the showing must be commensurate with the scope of the claims. MPEP § 716.02(d), In re Tiffin, 448 F.2d 791, 792 (Fed. Cir. 1971), In re Coleman, 205 USPQ 1172, In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983), and In re Greenfield, 197 USPQ 227. Furthermore, page 31 of instant brief has shown

EVIDENCE APPENDIX

None

no evidence. See below:

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

S. Ip

Conferees:

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